5 1
46. The method of claim 42, wherein the cancer is lung cancer.

6 1
47. The method of claim 42, wherein the cancer is ovary cancer.

7 1
48. The method of claim 42, wherein the cancer is breast cancer.

8 1
49. The method of claim 42, wherein the cancer is prostate cancer.

9 1
50. The method of claim 42, wherein the cancer is colon cancer.

10 1
51. The method of claim 42, wherein the cancer is leukemia.

11 1
52. The method of claim 42, wherein the cancer is carcinoma.

12 1
53. The method of claim 42, wherein the cancer is sarcoma.

13 1
54. The method of claim 42, wherein at least one nucleotide has a phosphate backbone modification.

17 1
55. The method of claim 42, wherein the oligonucleotide has 8 to 100 nucleotides.

14 13
56. The method of claim 54, wherein the phosphate backbone modification is a phosphorothioate or phosphorodithioate modification.

57. The method of claim 56, wherein the nucleic acid backbone includes the phosphate backbone modification at the 5′ end of the nucleic acid.

58. The method of claim 56, wherein the nucleic acid backbone includes the phosphate backbone modification at the 3′ end of the nucleic acid.

18 1
59. The method of claim 42, wherein X_1X_2 are nucleotides selected from the group consisting of: GpT, GpG, GpA, ApA, ApT, ApG, CpT, CpA, CpG, TpA, TpT, and TpG; and

45

X_3X_4 are nucleotides selected from the group consisting of: TpT, CpT, ApT, TpG, ApG, CpG, TpC, ApC, CpC, TpA, ApA, and CpA.

19 1
60. The method of claim ~~42~~, wherein X_1X_2 are GpA and X_3X_4 are TpT.

20 1
61. The method of claim ~~42~~, wherein X_1X_2 are both purines and X_3X_4 are both pyrimidines.

21 1
62. The method of claim ~~42~~, wherein X_1X_2 are GpA and X_3X_4 are both pyrimidines.

22 1
63. The method of claim ~~42~~, wherein the oligonucleotide is 8 to 40 nucleotides in length.

23 1
64. The method of claim ~~42~~, wherein the oligonucleotide is isolated.

24 1
65. The method of claim ~~42~~, wherein the oligonucleotide is a synthetic oligonucleotide.

66. A method for enhancing recovery of bone marrow in a subject undergoing or having undergone cancer therapy, comprising:

administering to a subject undergoing or having undergone cancer therapy which damages the bone marrow an effective amount for enhancing the recovery of bone marrow of an immunostimulatory nucleic acid, having a sequence including at least the following formula:

5′ X_1 X_2CGX_3 X_4 3′

wherein C and G are unmethylated, wherein X_1X_2 and X_3X_4 are nucleotides.

21 25
67. The method of claim ~~66~~, wherein at least one nucleotide has a phosphate backbone modification.

28 25
68. The method of claim ~~66~~, wherein the oligonucleotide has 8 to 100 nucleotides.

96

~~69~~ 27. The method of claim ~~67~~ 26, wherein the phosphate backbone modification is a phosphorothioate or phosphorodithioate modification.

~~70~~ 29. The method of claim ~~66~~ 25, wherein X_1X_2 are nucleotides selected from the group consisting of: GpT, GpG, GpA, ApA, ApT, ApG, CpT, CpA, CpG, TpA, TpT, and TpG; and X_3X_4 are nucleotides selected from the group consisting of: TpT, CpT, ApT, TpG, ApG, CpG, TpC, ApC, CpC, TpA, ApA, and CpA.

71. In a method for stimulating an immune response in a subject having a cancer, the method of the type involving antigen dependent cellular cytotoxicity (ADCC), the improvement comprising:

administering to the subject an immunostimulatory nucleic acid, having a sequence including at least the following formula:

5′ X_1 X_2CGX_3 X_4 3′

wherein C and G are unmethylated, wherein X_1X_2 and X_3X_4 are nucleotides, and wherein the sequence is not palindromic.

72. The method of claim 71, wherein at least one nucleotide has a phosphate backbone modificati0on

~~73~~ 31. The method of claim ~~71~~ 30, wherein the oligonucleotide has 8 to 100 nucleotides.

~~74~~ 33. The method of claim ~~73~~ 32, wherein the phosphate backbone modification is a phosphorothioate or phosphorodithioate modification.

~~75~~ 34. The method of claim ~~73~~ 32, wherein X_1X_2 are nucleotides selected from the group consisting of: GpT, GpG, GpA, ApA, ApT, ApG, CpT, CpA, CpG, TpA, TpT, and TpG; and X_3X_4 are nucleotides selected from the group consisting of: TpT, CpT, ApT, TpG, ApG, CpG, TpC, ApC, CpC, TpA, ApA, and CpA.